1. An electro-optic device comprising:

first and second spaced-apart surfaces defining a gap;

a chiral or cholesteric liquid crystal material disposed in the gap; and

a polymeric network disposed in the gap, the polymeric network being less than or about 5 weight percent of the liquid crystal, the polymeric network biasing the liquid crystal material toward a substantially uniformly lying helix texture.

2. The electro-optic device as set forth in claim **1**, wherein the polymeric network has a higher density near each surface and a lower density near a center of the gap.

3. The electro-optic device as set forth in claim **1**, wherein the gap has a width greater than two microns, and the polymeric network comprises:

a first portion extending from the first surface less than or about one micron into the gap.

4. The electro-optic device as set forth in claim **3**, wherein the polymeric network further comprises:

a second portion extending from the second surface less than or about one micron into the gap.

5. The electro-optic device as set forth in claim **1**, wherein the polymeric network comprises:

a first portion adjacent the first surface, the first portion having a density profile corresponding to an ultraviolet light intensity profile of ultraviolet light illuminating the gap from outside the first surface; and

a second portion adjacent the second surface, the second portion having a density profile corresponding to an ultraviolet light intensity profile of ultraviolet light illuminating the gap from outside the second surface.

6. The electro-optic device as set forth in claim **1**, wherein the chiral liquid crystal is selected from a group consisting of:

a cholerestic liquid crystal material, and

a smectic C* phase liquid crystal material.

7. The electro-optic device as set forth in claim **1**, wherein the polymeric network is less than or about 3 weight percent of the liquid crystal material.

8. The electro-optic device as set forth in claim **7**, wherein the chiral or cholesteric liquid crystal has a helix pitch less than about 0.5 micron.

9. The electro-optic device as set forth in claim **7**, wherein the chiral or cholesteric liquid crystal has a helix pitch between about 0.2 micron and about 0.5 micron.

10. The electro-optic device as set forth in claim **1**, wherein the chiral or cholesteric liquid crystal is a short pitch chiral or cholesteric liquid crystal.

11. The electro-optic device as set forth in claim **1**, wherein at least one of the first and second spaced-apart surfaces includes an anisotropic surface that biases molecules of the liquid crystal material adjacent said surface toward a selected alignment.

12. The electro-optic device as set forth in claim **1**, further including:

at least one electrode selectively producing an electric field in the gap directed generally transverse to the first and second spaced-apart surfaces, wherein the polymeric network produces substantially no residual optical birefringence when the at least one electrode produces an electric field in the gap that is sufficient to substantially unwind the chiral or cholesteric liquid crystal.

13. A preparation method comprising:

disposing a chiral or cholesteric liquid crystal, a photoreactive monomer, and a photoinitiator in a liquid crystal cell; and

illuminating a principal surface of the liquid crystal cell with ultraviolet light selected to have a non-uniform ultraviolet light intensity profile in the liquid crystal cell, the illuminating cooperating with the photoinitiator to polymerize at least a portion of the photoreactive monomer near the principal surface to generate a polymer network having a density corresponding to the non-uniform a ultraviolet light intensity profile, the polymer network biasing the liquid crystal toward a selected helical alignment direction.

14. The method as set forth in claim **13**, further comprising:

selectively impressing an electric field on the liquid crystal cell to flexoelectrically bias the liquid crystal away from the selected helical alignment direction.

15. The method as set forth in claim **13**, further comprising:

selectively impressing an electric field on the liquid crystal cell to substantially unwind the chiral liquid crystal; and

removing the electric field, the liquid crystal returning to the selected helical alignment direction responsive to the removing.

16. The method as set forth in claim **13**, further comprising:

selectively impressing a first electric field on the liquid crystal cell to flexoelectrically bias the chiral liquid crystal away from the selected helical alignment direction; and

selectively impressing a second electric field larger than the first electric field on the liquid crystal cell to substantially unwind the chiral liquid crystal;

wherein removal of the first or second electric field causes the chiral liquid crystal to return to the selected helical alignment direction.

17. The method as set forth in claim **13**, further comprising:

converting the liquid crystal to a uniformly lying helical texture having the selected helical alignment direction prior to the illuminating.

18. The method as set forth in claim **17**, wherein the converting comprises:

providing an anisotropic inner surface at least at the principal surface; and

applying at least one of heating and electrical biasing to align the liquid crystal into the uniformly lying helical texture, the uniformly lying helical texture having the selected helical alignment direction aligned one of parallel to and perpendicular to an anisotropic direction of the anisotropic inner surface.

19. A method for fabricating an electo-optic device, the method comprising:

disposing a liquid crystal and a photoreactive monomer in a liquid crystal cell, the disposed photoreactive monomer being less than 5 weight percent of the disposed liquid crystal;

arranging the liquid crystal in a uniformly lying helix texture; and

optically polymerizing the photoreactive monomer to form a stabilizing polymer network.

20. The method as set forth in claim **19**, wherein the optical polymerizing comprises:

illuminating a principal surface of the liquid crystal cell with ultraviolet light selected to have a non-uniform ultraviolet light intensity profile in the liquid crystal cell, the polymer network having a density corresponding to the non-uniform ultraviolet light intensity profile.

21. The method as set forth in claim **20**, wherein the disposing further comprises:

disposing a photoinitiator in the liquid crystal cell, the photoinitiator cooperating with the ultraviolet light to effect the optical polymerizing.

22. The method as set forth in claim **19**, wherein the optical polymerizing comprises:

illuminating a principal surface of the liquid crystal cell with ultraviolet light that is substantially absorbed inside the liquid crystal cell within one micron of the principal surface.

23. The method as set forth in claim **19**, wherein the optical polymerizing comprises:

illuminating a principal surface of the liquid crystal cell with ultraviolet light having a photon energy greater than about 3.55 eV.

24. The method as set forth in claim **19**, wherein the optical polymerizing comprises:

illuminating a principal surface of the liquid crystal cell with ultraviolet light having a photon energy greater than about 3.8 eV.

25. An electro-optic device comprising:

a liquid crystal cell;

at least one electrode arranged to selectively electrically bias the liquid crystal cell;

a chiral or cholesteric liquid crystal disposed in the liquid crystal cell, the liquid crystal having an optic axis substantially along a selected optic axis direction in the absence of an electrical bias; and

a polymeric network disposed at an inside surface of the liquid crystal cell, the polymeric network extending partway into the liquid crystal cell leaving at least a portion of the liquid crystal cell substantially free of the polymeric network.

26. The electro-optic device as set forth in claim **25**, wherein the at least one electrode is arranged to provide:

a first electrical bias that produces a flexoelectric deviation of the optic axis of the liquid crystal away from the selected optic axis direction; and

a second electrical bias that substantially unwinds a helical ordering of the liquid crystal;

wherein removal of the first or second electrical bias causes the optic axis of the liquid crystal to return to the selected optic axis direction.